South 4 Group Fire at PNO
TPC Group LLC
June 15, 2020

Executive Summary

At approximately 01:00 on November 27, 2019, an explosion and fire occurred at the South Group processing unit at the TPC Group LLC Port Neches Operations facility. Emergency response personnel from several organizations including Jefferson County and several members of the mutual aid organization, Sabine Neches Chiefs Association, responded to the fire. Jefferson County Office of Emergency Management, the US Environmental Protection Agency, Texas Commission on Environmental Quality and TPC Group established a Unified Command (UC) to address the incident through a coordinated response structure. More than twenty agencies and organizations participated in the response and monitoring efforts.

An extensive network of real-time and analytical monitoring stations was quickly established by CTEH and agency contractors to monitor around the site and throughout the community. They monitored for VOC, Butadiene, % LEL (Lower Explosion Level) and particulate matter utilizing portable analyzers that provided real-time results. Several stationary sampling stations were established around the site and in the community. These collected 24-hour samples, which were sent daily to a certified laboratory for analysis to identify the quantity of several constituent that were measured, including many VOC's, PM and asbestos.

The primary fire was extinguished on November 30 at 09:30, although several small fires were allowed to burn out and extinguish themselves. The last fires were extinguished on 1/4/2020. As the firefighting response ended, the site shifted to a monitoring and assessment focus. Drones were flown several times per day when possible to provide aerial visuals and infrared scans of the site, equipment and the canal. The flights helped identify continuing leaks, monitor the safe state of the equipment, assess damage and identify issues that needed to be addressed.

During the period from the initial addition of water to the fire, until a generator restored power at the joint wastewater plant, water collected in the ditches and containment at the TPC site until they became full and discharged. The runoff primarily discharged through Outfall 201 to the Outfall Canal, which is the same canal into which the treated waste water from the Joint Wastewater Treatment Plant discharges. Floating hydrocarbon and firefighting water runoff was discharged into this waterway. Response Teams and equipment were established prior to discharge from Outfall 201. A series of booms and response equipment including vacuum trucks were set up to collect and containerize contaminated material. A multifaceted Shoreline Cleanup and Assessment Technique (SCAT) Team was established, which included response and agency personnel. A SCAT was performed and the canal was divided into five sectors to ensure monitoring and response actions prevented hydrocarbons from reaching the Neches River.

The site transitioned from firefighting to mitigation and control. Site and contract personnel assessed the site, identifying leaks and safety concerns, then systematically developed plans and protocols to mitigate leaks, restore necessary infrastructure and de-inventory the site. Air monitoring continued at the site and throughout the community. Monitoring and cleanup activities on the canal also continued. A plan was developed and implemented to remove blast debris that potentially contained asbestos in the community and within the facility.

Unified Command monitored the situation and adjusted the organization accordingly. EPA transitioned the response and clean up oversight of Unified Command to TCEQ on December 13, 2019. On January 30, 2020, TCEQ disbanded Unified Command, relinquishing incident command to TPC. The event was declared over at 11:13 on March 30, 2020, when the last leaks on two tanks were stopped.

Potential asbestos containing material (PACM) was strewn across a broad area at and around the site. Abatement contractors began collecting the material in the community and at the site. All of the debris collected was handled as asbestos-containing. Decontamination stations were established to decontaminate any items to be used or removed from the site.

From November 27, 2019 to January 30, 2020, daily air monitoring and analytical air sampling air quality evaluations were conducted by members of the UC. On December 11, 2019, UC approved an air monitoring and sampling reduction plan to focus community monitoring and sampling within a 1-mile radius from the TPC facility. On December 19, 2019, a similar air monitoring and sampling reduction plan was approved by UC to focus community monitoring and sampling within a 0.5-mile radius from the TPC facility. On January 30, 2020, UC approved a final community air reduction plan, which reduced air monitoring and sampling to inside and along the fence line of the TPC facility. On that same day, UC was dissolved by the federal, state, and local representatives. CTEH personnel concluded routine community air monitoring and sampling at the end of the daytime shift on January 30, 2020. Since January 30, 2020, CTEH continued air monitoring and sampling along the fence line and inside the boundaries of the TPC facility.

From the period of November 27, 2019 through January 31, 2020, CTEH collected 258 surface water samples from 20 locations and nine drinking water samples from one location. Initial surface water sampling was conducted twice daily from November 28, 2019, through December 11, 2019. Following the approval of an Environmental Sampling Reduction Plan by UC on December 11, 2019, asbestos analysis was discontinued, and surface water sampling was reduced to daily sampling from December 12, 2019, through December 19, 2019. On December 20, 2019, TCEQ verbally approved adjusting sampling efforts to weekly sampling events, which were performed until January 31, 2020. Water samples were taken from locations upstream of the incident discharge site at the Huntsman dock, Collier's Ferry Park in Beaumont, Texas, and the TPC water intake location on the Neches river, as potential baseline sampling locations to aid in the evaluation of site-specific sampling data. Surface water samples were collected from permitted outfalls for TPC and neighboring facilities, water retention sites and effluents, all canals associated with the JWWTP runoff, the raw water intake for the city of Port Neches (WS007), and the final permitted discharge location. Drinking water samples were collected from a faucet inside the City of Port Neches Water Plant from December 17, 2019, through January 19, 2020.

The waste generated during the event included potential asbestos containing material, recovered hydrocarbon and water from the cleanup of the discharge canal, oil-contaminated solids, such as boons and other debris from the cleanup efforts and hydrocarbons collected from the plant sumps. TPC contained, sampled and identified disposal facilities these materials. Activated carbon and scrubbing solution for controlling emissions from the waste storage containers were generated by the response.

List of Acronyms

ACM – Asbestos Containing Materials
CC4 – Crude C4, the raw material for the butadiene separation process
CO – Carbon Monoxide
CTEH – Center for Toxicology and Environmental Health
EOC – Emergency Operations Center
EPA – US Environmental Protection Agency
FOSC – Federal On-Scene Coordinator
FRP – Federal Response Plan
GLO – Texas General Land Office
IC – Incident Commander
JWWTP – Joint Wastewater Treatment Plant jointly owned by Lion Elastomers, Huntsman (Indorama) and TPC
LEL – Lower Explosive Limit
LOSC – Local On-Scene Coordinator
MTBE – Methyl tert-butyl ether
NCP – National Contingency Plan
NIIMS – National Interagency Incident Management System
NMP – n-Methyl-2-pyrrolidone solvent
NOx – Nitrogen Oxides
PACM – Potential Asbestos Containing Materials
PFOS/PFOA - perfluoroalkyl substances used in firefighting foams
PIO – Public Information Officer
PM – Particulate Matter
PNO – Port Neches Operations located at Spur 136 and Highway 366 in Port Neches
PRP – Principal Responsible Party
RRC – Texas Railroad Commission
SCAT – Shoreline Cleanup and Assessment Technique
SO2 – Sulfur Dioxide
SOSC – State On-Scene Coordinator
TCEQ – Texas Commission on Environmental Quality
TPC – TPC Group LLC
TRG – The Response Group
UC – Unified Command
USCG – United States Coast Guard
VOC – Volatile Organic Compounds

Introduction

This report is intended to provide an overview of the incident that occurred at the TPC Group LLC Port Neches Operations facility on November 27, 2019 and provide information on the actions taken to respond to the event and ultimately stabilize the site.

Background

2.a. Site Description

TPC Group LLC Port Neches Operations (PNO) is located on Highway 366 at Spur 136 on approximately 218 acres. Construction of the facility began in 1943 and initial operations began in February 1944 producing butadiene, the primary component of synthetic rubber.

The Butadiene Process produces butadiene by extraction and distillation of crude butadiene purchased from various olefin plants to produce butadiene and Raffinate. The site has storage tanks, including some used to store MTBE and methanol for Indorama. The site's infrastructure supports handling raw materials, intermediates, by-products and finished products via pipeline, barge and rail.

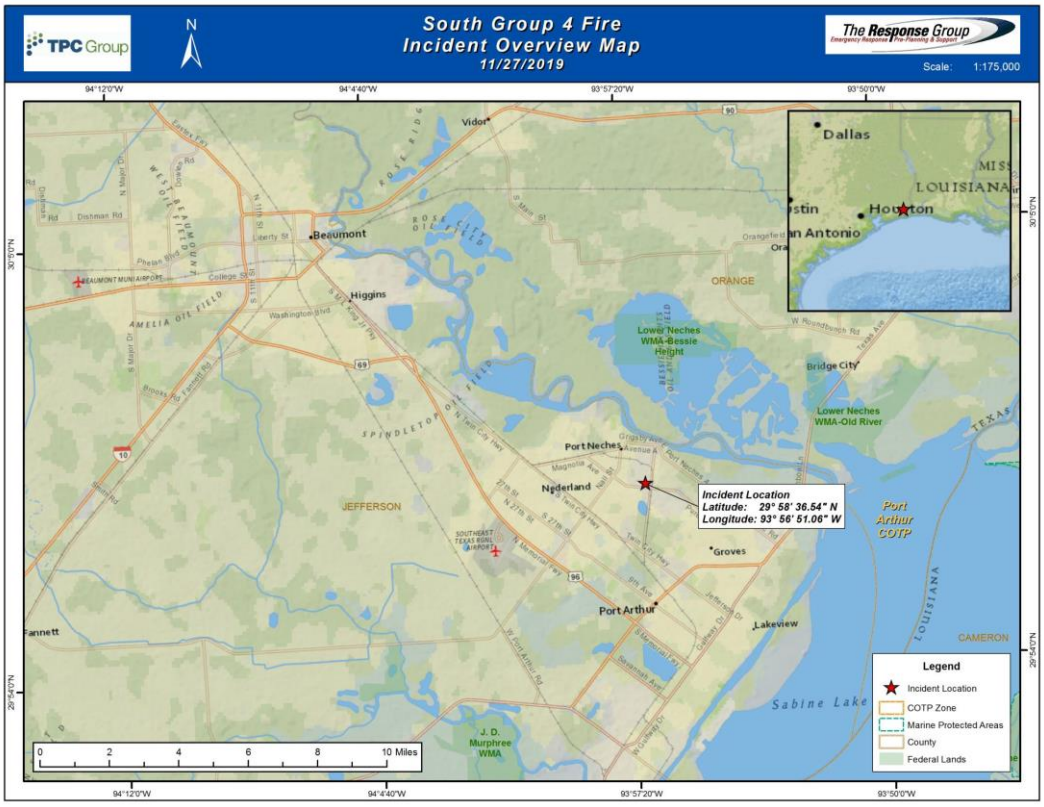
Lion Elastomers LLC has a facility adjacent and directly north of PNO. MOTIVA Enterprise occupies the northeast sector of the junction of Highway 366 and Spur 136, across the street from the site. Indorama owns and operates the facility located to the south of Highway 366, to the south and southeast. They operate the Joint Wastewater Treatment Plant (JWWTP)that is co-owned by Lion, Indorama and TPC.

Dock Facility

The Port Neches Operations Dock is located approximately one-half mile north of PNO. It consists of two separate docks that have the ability to load and unload 1,3 butadiene, Crude C4 (Crude butadiene) and Raffinate.

2.b. Geography

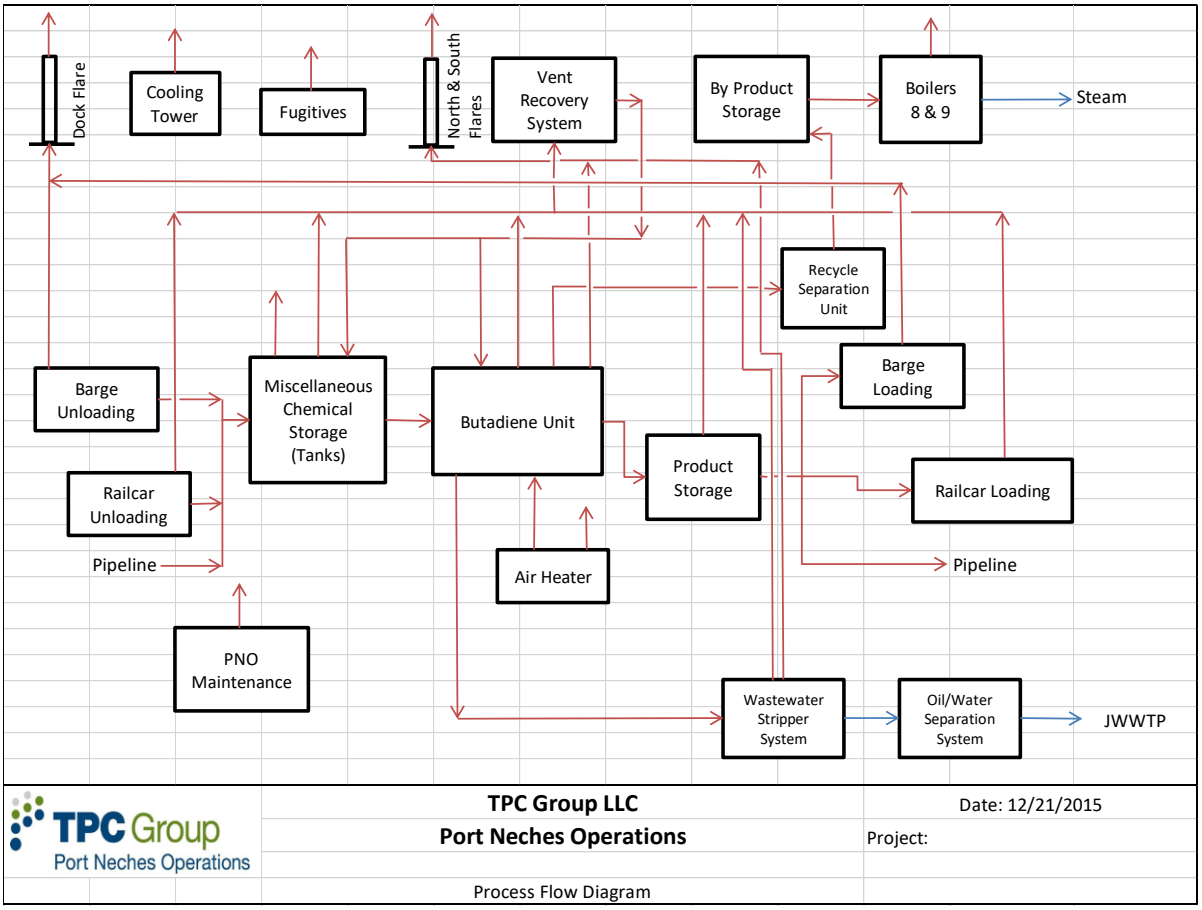
The site is located in the eastern section of Port Neches in Jefferson County approximately 20 miles inland on the Neches River. Please see the *Incident Overview Map* below.



2.c. Facility

The Port Neches Operations facility employed more than 175 full-time employees and 50 contractors. Combined production capacity for this facility is more than 900 million pounds per year.

The Port Neches Operations consist of Butadiene production unit and support/ancillary equipment. The BD unit receives raw or crude butadiene from barges, transport vessels, and pipeline. The crude butadiene is stored in several spherical pressure tanks along with intermediates, finished product, off spec product and solvent slop. From the raw material storage tanks, the raw material is first washed. The overhead stream is routed to treatment where impurities are removed. The reactor effluent is then routed to the Distillation section of the process. In the distillation section the effluent is distilled several times to remove heavy ends and further refine the product. After distillation the product is water washed for further purification. It is then stored in spherical pressure tanks until being shipped offsite mainly by pipeline and sometimes by transport vessels. Off spec product can be pumped back into the process as raw material or for partial processing.



2.d. Portion of the Facility Involved in Incident

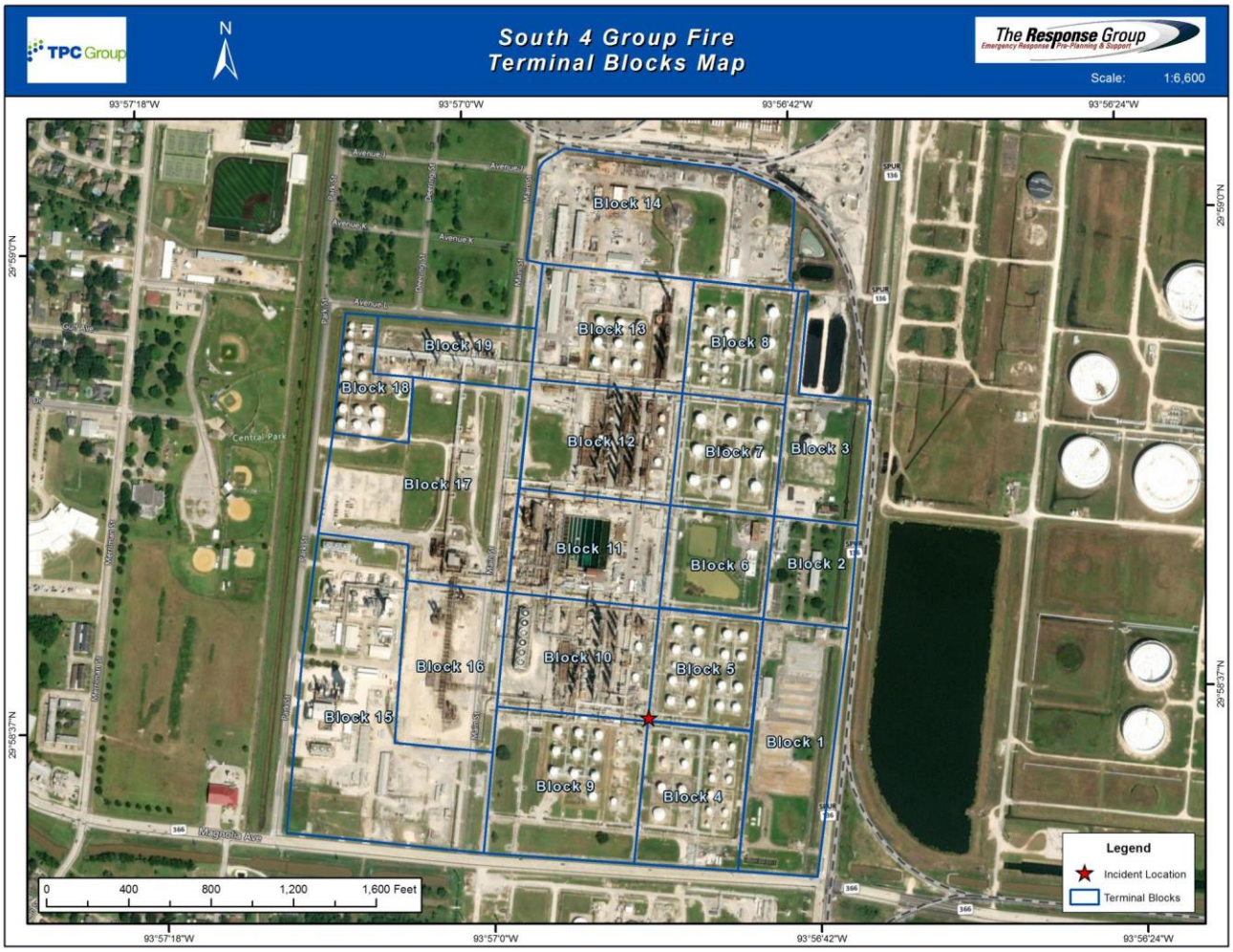
The event occurred in Block 10 and impacted Block 5. Block 10 contained the Butadiene production process, including the columns and equipment for segregating, distilling, and compressing the final product, Butadiene

and co-product, Raffinate. Please see the *Terminal Blocks Map* to view the facility Blocks pre-incident and the TPC Plant Overview Map for post-incident impacts to Blocks 5 and 10.

The explosion and fire impacted the contents of several tanks and the South Group processing area. Chemicals that were involved in the release include 1, 3 Butadiene, MTBE, Crude C4 l), Raffinate and N-Methyl-2-pyrrolidone (NMP), which is a solvent utilized in the process.

An inventory taken the day before the event and inventory estimated following the main fire was used as the basis for impacted volumes. These values were used as one of the bases for the final emissions event report.

The following photo provides a view of the Site, with Blocks indicated, prior to the event



The above photo provides a view of the Site post-event.

2.e. Chronology of the Event
Please refer to the attached Chronology in Appendix A of this report.

2.f-h. Description of the Event and Overview of Response
At approximately 01:00 on November 27, 2019, a vapor cloud ignited causing an explosion and subsequent fire in the South Group Processing Unit that impacted the site, especially Blocks 10 and 5.

Emergency response personnel from several organizations including Jefferson County and several members of the mutual aid organization, Sabine Neches Chiefs Association, responded to the fire. Jefferson County Office of Emergency Management, the US Environmental Protection Agency, Texas Commission on Environmental Quality and TPC Group established a Unified Command (UC) to address the incident through a coordinated response structure. More than twenty agencies and organizations participated in the response and monitoring efforts.

At approximately 11:45, one of the process towers involved in the fire failed, resulting in a secondary explosion. All personnel were accounted for. There were no injuries.

An extensive network of real-time and analytical monitoring stations was quickly established by CTEH and agency contractors to monitor around the site and throughout the community. They monitored for VOC, Butadiene, % LEL (Lower Explosion Level) and particulate matter utilizing portable analyzers that provided real-time results. Several stationary sampling stations were established around the site and in the community. These collected 24-hour samples, which were sent daily to a certified laboratory for analysis to identify the quantity of several constituent that were measured, including many VOC's, PM and asbestos.

The primary fire was extinguished on November 30 at 09:30, although several small fires were allowed to burn out and extinguish themselves. All fires were declared extinguished on 1/4/2020. As the firefighting response ended, the site shifted to a monitoring and assessment focus. Drones were flown several times per day when possible to provide aerial visuals and infrared scans of the site, equipment and the canal. The flights helped identify continuing leaks, monitor the safe state of the equipment, assess damage and identify issues that needed to be addressed.

During the period from the initial addition of water to the fire, until a generator restored power at the joint wastewater plant, water collected in the ditches and containment at the TPC site until they became full and discharged. The runoff primarily discharged through Outfall 201 to the Outfall Canal, which is the same canal into which the treated waste water from the Joint Wastewater Treatment Plant (JWWTP) discharges. Floating hydrocarbon and firefighting water runoff was discharged into this waterway. First observed overflow at Outfall 201 was at 8:58 a.m. on November 27th. Response Teams and equipment were in place prior to discharge from Outfall 201. A series of booms and response equipment including vacuum trucks, Jon boats and skimming devices were used to collect and containerize contaminated material. Power was restored to the JWWTP on November 29th and portable pumps were commissioned and began sending waste water from TPC to the JWWTP. At times, firewater volumes and rates exceeded the capacity of the pumps and the JWWTP capacities, resulting in intermittent flows to the canal.

A multifaceted Shoreline Cleanup and Assessment Technique (SCAT) Team was established, which included response and agency personnel. A SCAT was performed and the canal was divided into five sectors to ensure monitoring and response actions prevented hydrocarbons from reaching the Neches River. The overflow ceased on December 6th as a result of a reduction in the use of fresh firewater, an increase in the use of recirculated firewater and consistent pumping to the JWWTP. Response efforts continued until February 28, 2020, when TCEQ performed the final SCAT.

The site transitioned from firefighting to mitigation and control. Site and contract personnel assessed the site, identifying leaks and safety concerns, then systematically developed plans and protocols to mitigate leaks, restore necessary infrastructure and de-inventory the site. Air monitoring continued at the site and throughout the community. Monitoring and cleanup activities on the canal also continued. A plan was developed and implemented to remove blast debris that potentially contained asbestos in the community and within the facility.

2.i Leaks

As the site transitioned into monitoring and mitigation mode following the fire response, contract and plant personnel systematically surveyed the site to identify leaks and develop protocols to mitigate them. A Source Control Report was developed to track the leaks. Please refer to the attached copy of this report in Appendix B. It provides information about the leak locations, date of discovery and mitigation date.

Organization

3.a Command and Control
In order to marshal and organize all available resources at TPC into a rapid, orderly response team in emergency situations, TPC utilized an emergency operations organizational framework operated within the National Interagency Incident Management System (NIIMS) guidelines provided by the Dept. of Homeland Security, OSHA, Sabine Neches Chiefs, as well as by city, county and state agencies. TPC has Emergency Action Plans in place for its operations and implemented those plans in this event.

3.a.i. Unified Command
The Unified Command Structure was utilized as a method of integrating federal, state, and local agencies with the responsible party. The purpose of this system is to organize the variety of agencies that may be involved in a response into a consistent team that performs their duties in a concerted, unified effort. The Unified Command Structure consists of four key on-scene coordinators: Federal On-Scene Coordinator (FOSC), State On-Scene Coordinator (SOSC), Local On-Scene Coordinator (LOSC) and the TPC EOC Manager. TPC's command structure also included the following positions as a part of UC: Public Information Officer (PIO), Liasion Officer and Safety Officer(s). These entities shared decision-making authority and consulted with each other regarding response management issues.

3.a.i.1. Federal

FOSCs are the federal officials predesignated by US EPA and the USCG to coordinate response resources, with US EPA always serving a primary FOSC in this response. The FOSC monitors, provides technical assistance, and/or directs federal and PRP resources. It is the FOSCs responsibility to provide access to resources and technical assistance that may not otherwise be available to a community. Under the NCP, if federal involvement is necessary because state and local resources have been exceeded, the OSC is obligated to coordinate the use of these resources to protect public health and the environment. During an incident, EPA will usually provide FOSCs in the inland zone, and the USCG will generally provide FOSCs in the coastal zone. The FOSC coordinates all federal containment, removal, and disposal efforts and resources during an incident under the NCP or the Federal Response Plan (FRP).

3.a.i.2. State
The SOSCs are the state officials predesignated by Texas Commission on Environmental Quality (TCEQ), Texas Railroad Commission (RRC) or Texas General Land Office (GLO) to coordinate state response resources. TCEQ is the primary state agency regarding incidents and was official SOSC for this response.

3.a.i.3. Local
The LOSCs are the local county officials predesignated by the local office of emergency management in conjunction with the local county judge. The county judge for Jefferson County Texas and the Jefferson County Office of Emergency Management representatives served as LOSC for this response.

3.a.i.4. Significant Contractors
The significant contractors utilized by TPC during the response are as follows: Center for Toxicology and Environmental Health (CTEH), Clean Harbors Environmental Services, The Response Group (TRG), Global Risk Solutions, Cotton Logistics, US Fire Pumps, Williams Fire & Hazard Control, UPS Industrial Services, AAY Security, United Rentals, Environmental Analytical Services, Industrial Rescue, HydrochemPSC, National Compressor,

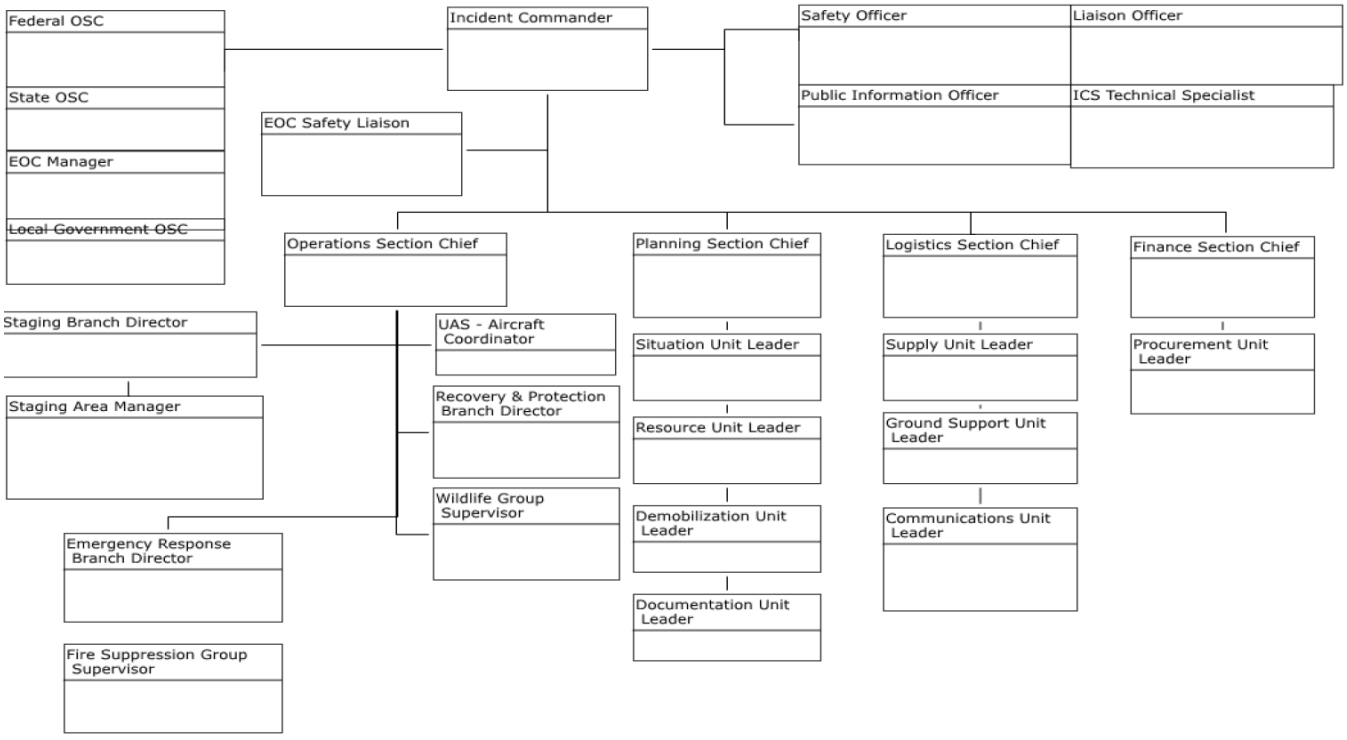
Resolute Environmental, BakerRisk, BrandSafway, Harris DeVille, HazMat Specialist Services, GEM Mobile Treatment Services, Wildlife Response Services, Vallen, and Acadian Ambulance.

3.a.ii. Agencies Involved

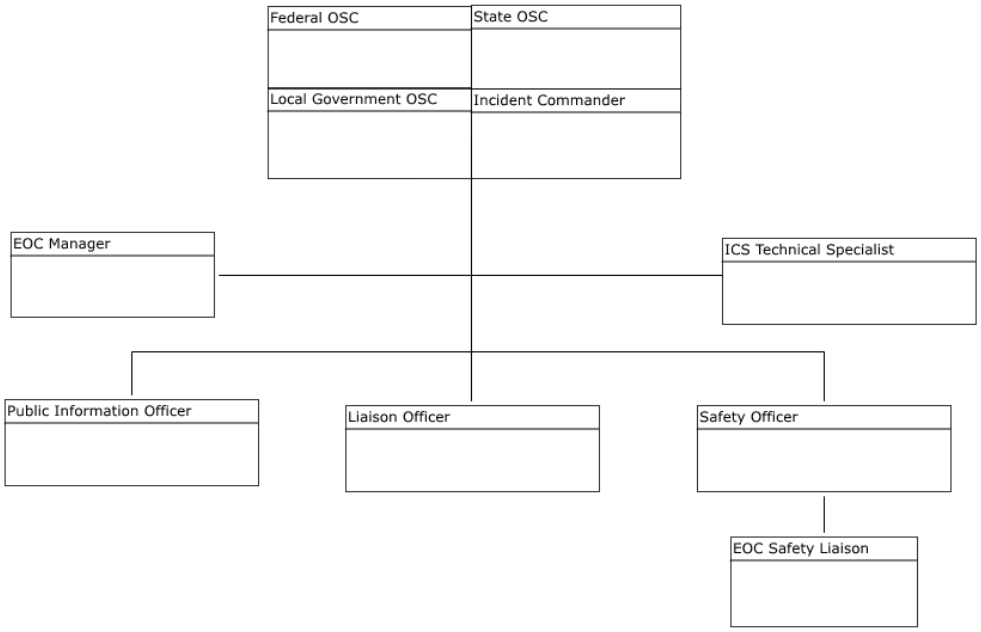
The following agencies were involved in the response: US Environmental Protection Agency – Region 6, Texas Commission on Environmental Quality, Texas General Land Office, United States Coast Guard, Texas Parks and Wildlife, Jefferson County Sheriff's Office, US Department of Homeland Security, Jefferson County Office of Emergency Management, Orange County Office of emergency Management, Agency for Toxic Substances and Disease Registry, National Response Center, American Red Cross, Texas Forest Service, Texas Division of Emergency Management – Region 2, Chemical Safety Board, Occupational Health and Safety Administration, Lower Neches Valley Authority, Jasper County Sheriff's Department, Federal Bureau of Prisons, EcoWerks, Hardin County Sheriff's Department, Texas Department of Public Safety, Jefferson County Drainage District, Port Neches Fire Department, Groves Fire Department, Nederland Fire Department, and Port Neches Police Department.

3.a.iii. ISC Structure

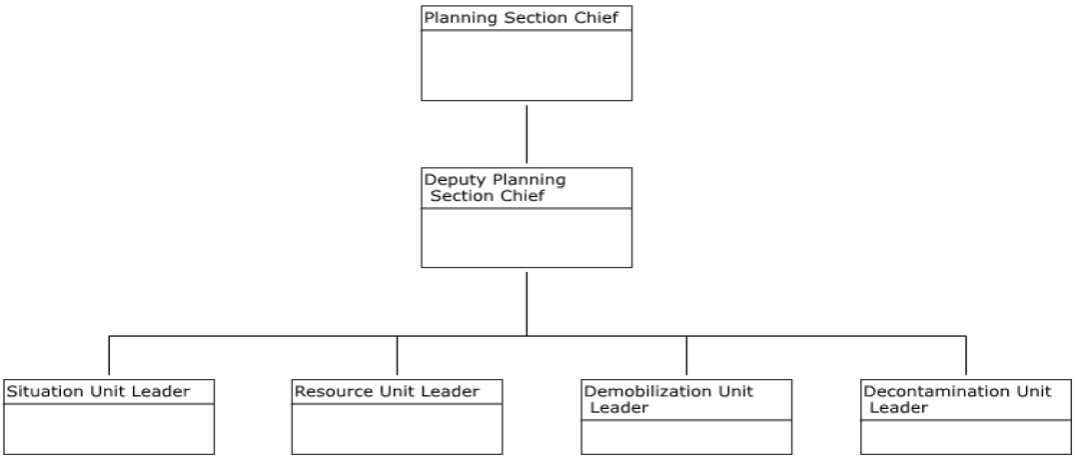
The organizational charts below depict the overall structure of the South 4 Group Fire response.



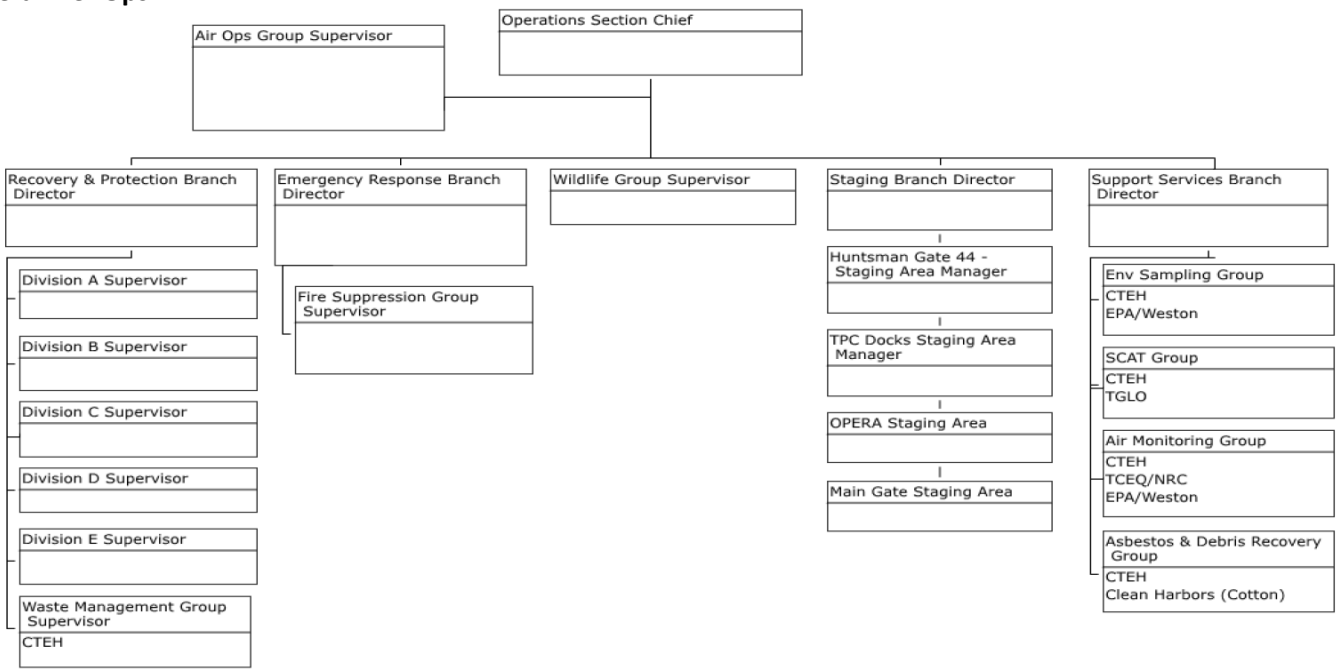
3.a.iii.1. UC



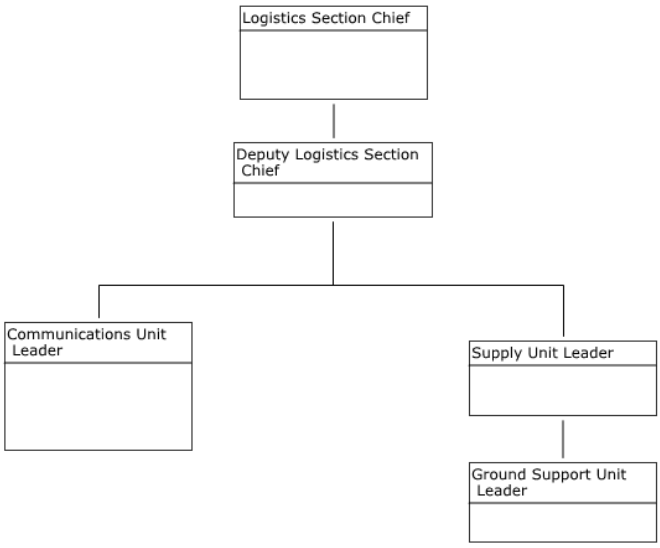
3.a.iii.2. Planning



3.a.iii.3. Ops



3.a.iii.4. Logistics



3.b. Work/Staging Areas

3.b.i. Emergency Operations Center (EOC)

After the initial hours of the response the EOC was located at the Huntsman Administration Building on TX-136 Spur just south east of the TPC Port Neches facility. In the evening of November 27th the EOC was relocated to the Holiday Inn & Suites – Beaumont Plaza on Walden Road in Beaumont, TX. On December 4, 2019 the EOC was permanently moved to 3501 Turtle Creek Dr. in Port Arthur, TX. The EOC served as the work center for all individuals supporting the response that were not specifically assigned to the incident location. The Response Group (TRG) was mobilized to assist with organizing the EOC, providing tools and guidance to ensure an effective response was coordinated between the site, EOC, the community and all agencies involved.

3.b.ii. Incident Command Trailer (IC)

The incident command trailer was located in close proximity to the facility and served as the headquarters for the response efforts for all individuals assigned to support the incident on location.

3.b.iii. Fire Fighting

All firefighting efforts were led by the TPC Fire Suppression Group Supervisor. Multiple municipal fire departments immediately responded to the incident site, as well as, several industrial neighbors as members of the mutual aid organization for the South East Texas area, Sabine Neches Chiefs' Association. Fire fighting strategy and techniques utilized during the response are addressed in Section 4.a.i.1.

3.b.iv. Water Ops

Extensive water operations were initiated the morning of the incident. Clean Harbors was the primary contractor to perform the water operations and served as the Oil Spill Removal Organization (OSRO) for the response. The water operations were divided into five divisions in order to efficiently manage response efforts.

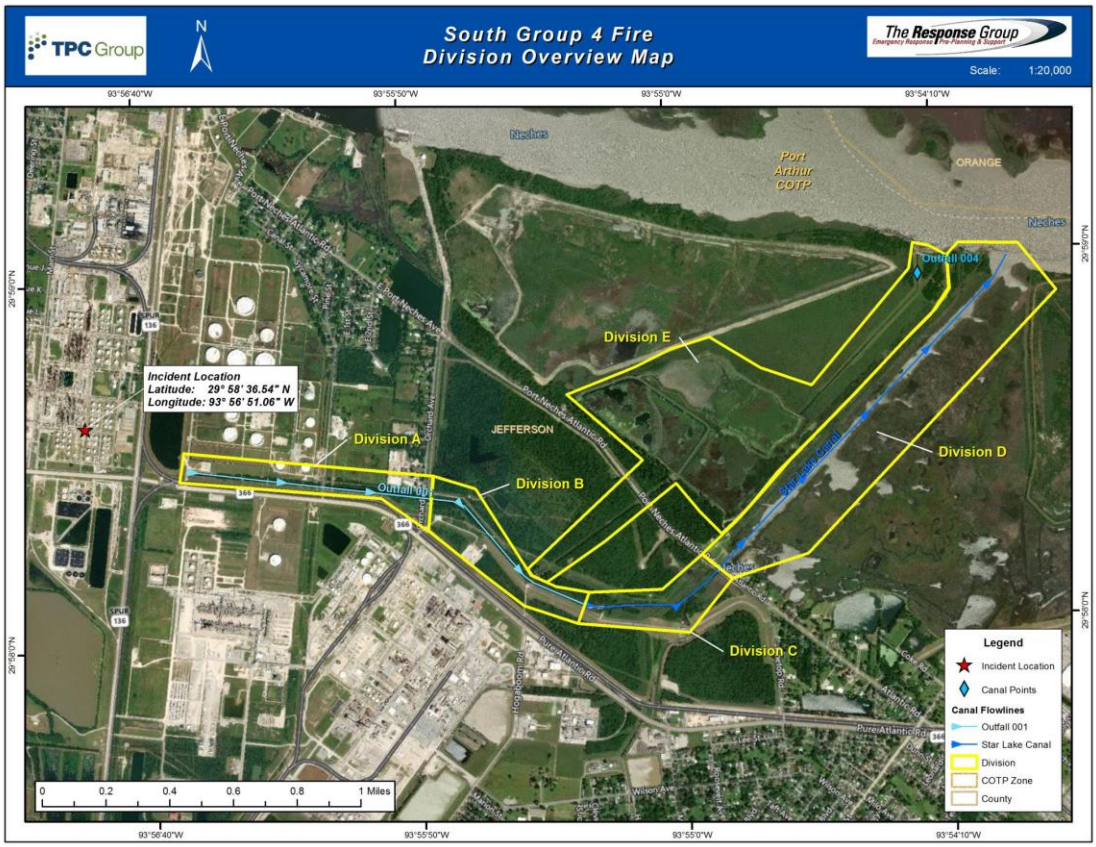
The *Division Overview Map* below depicts the boundaries for Divisions A – E. Any discharge from the response site flowed into the discharge canal in Divisions A, B and C, then to the Star Lake Canal (Division D) to the Neches River. Division E was included in the response protection measures because waters from the discharge canal can be pumped into this area as a tertiary treatment and then flow into the Neches River. The *Boom Overview*

Map below depicts the locations that the OSRO contractor placed a variety of booms and other mitigation measures.

A series of booms and response equipment including vacuum trucks, Jon boats and skimming devices were used to collect and containerize contaminated material.
The following Table represents the resources utilized to mitigate potential impacts to the canal.

Outfall Response Resources Personnel	Boom (ft.)	Sorbent Boom (ft.)	Response Boats	Skimmer	Vacuum Trucks	Frac Tanks	Viscous Sweep
60+	12,500	8,350	6	1	10	20	250

A multifaceted Shoreline Cleanup and Assessment Technique (SCAT) Team was established, which included response and agency personnel. A SCAT was performed throughout the canal Divisions A – E to ensure monitoring and response actions prevented hydrocarbons from reaching the Neches River Water operations ceased on February 28, 2020. Summaries of resources utilized with water operations are in the ICS 209 Form in Appendix C.



3.b.v. Decontamination Areas

All decontamination activities associated with water operations response efforts were performed by a TPC contractor, EcoWerks. EcoWerks provided the industrial cleaning services at their site which is located on Procter Street in Port Arthur, TX. Decontamination activities associated with the on-site clean-up of asbestos containing materials (ACM) were performed by Clean Harbors and/or Cotton Logistics. Personnel decontamination stations were co-located near the work areas as each block within the facility was cleared of all ACM at grade. All other decontamination activities for on-site equipment and other materials were performed in Block 14 of the site on the existing equipment wash pad. Two fully-contained "wet" decontamination stations were installed and one fully-contained "specialty" decontamination station was installed to perform these decontamination actions.

3.b.vi. Waste Staging Areas

All wastes generated by the incident response were staged and managed on-site or in close proximity to the site. All liquid wastes were managed is 20,000-gallon frac tanks. The majority of the frac tanks were located along Highway 366 in close proximity to the water operations that were generating the waste. A lane of Highway 366 was blocked off to provide a safety buffer for the stored materials and the contractors handling the wastes. All solid/bulk wastes that were generated from the incident response were managed in various types of roll-off containers and the majority were staged at the TPC dock property located North of the facility along the Neches River. Please see the *Waste Management Map* to view the staging locations of all response related waste.


TPC Group
N
South 4 Group Fire
Waste Management Map
The Response Group
Emergency Response | Pre-Planning & Support
Scale: 1:17,500
93°57'8"W
93°56'25"W
93°55'42"W
93°54'59"W
29°59'15"N
29°58'30"N
Port Neches Park
ORANGE
Neches
JEFFERSON
Incident Location
Latitude: 29° 58' 36.54" N
Longitude: 93° 56' 51.06" W
Port Neches Atlantic Rd
E Port Neches Ave
Orchard Ave
Main St
Park St
Merriman St
Avenue A
Avenue B
Avenue C
Avenue D
Avenue J
Avenue K
Avenue L
Grigsby Ave
Holland Ave
Royal Ave
New Ave
Hebert Dr
Central Dr
Gist Dr
Drawhorn Dr
Baker Ave
N Cherokee
Canal St
Sycamore St
Pine St
E 1st St
E 2nd St
SPUR
136
365
366
0 0.2 0.4 0.6 0.8 1 Miles
Legend
Incident Location
Frac Tank
Roll Off Box
County

Actions Taken

4.a Operations

4.a.i. Initial Ops

Initial operations of site personnel and emergency responders were to account for all employees and to address injuries. The incident commander focused on assessing and utilizing available resources and managing the incident until Unified Command was established.

4.a.i.1 Fire

Firefighting efforts for cooling were established after the initial explosion with unmanned fire monitors on the north and northeast side of Blocks 5 and 10. The area's mutual aid organization, Sabine Neches Chief's Association, responded and began establishing staging at the Huntsman (now Indorama) contractor parking area whereby emergency response resources from industrial neighbors were staged. Effective cooling of the Blocks was established around 8:00 am and plans were put in place to receive water supply from the nearby Neches River to effectively utilize additional unmanned fire monitors. Once all water resources were obtained, approximately 36,000 gpm of firewater were used to continue cooling and to start addressing target fires. US Fire Pumps and Williams Fire Control were on hand to assist with establishing this flow. TPC and supporting firefighting resources then began to use the Port Neches Fire Department's tower to have aerial view of the facility to adjust firewater monitor streams as needed. This firefighting strategy was utilized throughout the 7-day period after the initial explosion until all spot fires were extinguished and only intentional vapor-pressure fires remained.

4.a.i.2 Air Monitoring/Sampling

TPC engaged the Center for Toxicology and Environmental Health (CTEH) to perform ambient air monitoring and sampling shortly after the incident occurred. Real-time air monitoring and analytical air sampling operations began at approximately 9:42 am the morning of the incident. Handheld real-time air monitoring and analytical air sampling performed around the facility and within the surrounding community between 11/27/19 to 1/30/2020 totaled over 161,610 readings with over 59,810 readings taken for 1,3 butadiene. The *Real-Time Air Monitoring Trend Graph* below graphically shows the period of community readings for 1,3 butadiene. Of the over 59,810 only 666 detections of butadiene were recorded. *Table 4.1.1 Community Handheld Real-Time Air Monitoring Results* summarizes the analytes, instruments used, number of readings and number of detections and the range of detections of all real-time community handheld monitoring performed by CTEH.

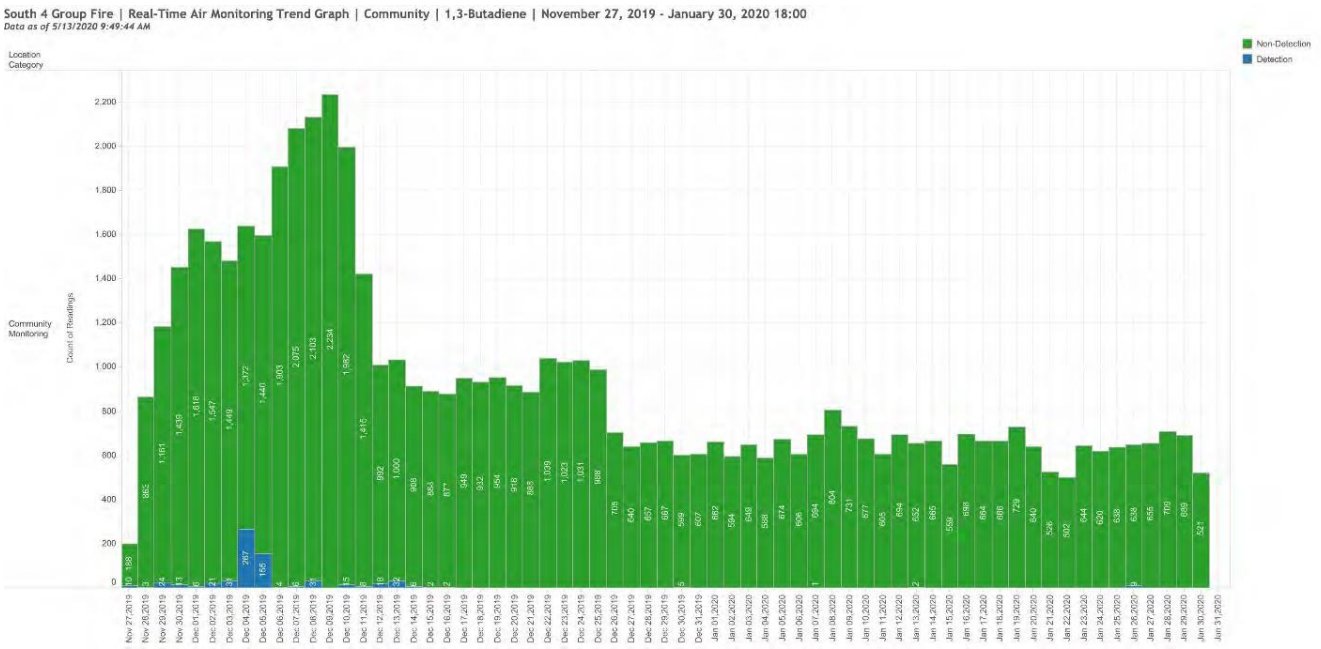


Table 4.1.1 Community Handheld Real-Time Air Monitoring Results
November 27, 2019 0942 to January 30, 2020 0600

Analyte	Instrument	Count of Readings	Count of Detections	Range*
1,3-butadiene	Drager X-PID 8500	5,780	250	0.07 – 7.24 ppm
	Gastec #174LL	13	10	0.1 – 5 ppm
	UltraRAE	54,018	406	0.01 – 12.09 ppm
Benzene	Drager X-PID 8500	3,600	0	< 0.02 ppm
	UltraRAE	64	0	< 0.01 ppm
CO	MultiRAE	2,272	4	2 – 5 ppm
CO_2	Gastec #2LC	14	14	300 – 500 ppm
%LEL	MultiRAE	29,703	0	< 1%
NO_2	Gastec #9L	197	0	< 0.01 ppm
	MultiRAE	1,030	0	< 0.01 ppm
$PM_{2.5}$	AM510	4,036	4,036	0.001 - 0.755 mg/m³
	AM520	694	694	0.002 - 0.134 mg/m³
Styrene	Drager X-PID 8500	9	0	< 1 ppm
	Gastec #124L	57	0	< 0.5 ppm
VOCs	MultiRAE	60,132	498	0.1 – 12.9 ppm

*If no detections were observed, the instrument detection limit preceded by a "<" symbol is listed.

The *Air Monitoring Sites Overview Map* below depicts the locations of the fixed location ambient air sampling stations that were deployed the morning of the incident. The majority of the analytical stations were located within the 4-mile radius of the initial evacuation zone. 893 24-hour period samples were collected and analyzed for Volatile Organic Compounds (VOCs), Table 4.2.1 Summary of Outdoor Analytical Air Sample Detections – VOCs depicts the details of the analyte sampled, the number of detections, the detection range in parts per billion (ppB) and the TCEQ health-based screening values.

CTEH followed the UC-approved air monitoring and sampling plan to conduct both real-time air monitoring and analytical air sampling to assess the potential for airborne chemical exposures within the nearby communities surrounding the TPC Port Neches facility. The CTEH air monitoring and sampling data indicate that there were no adverse impact on public health in the community from November 27, 2019 to January 30, 2020 as a result of the South 4 Group Fire event.

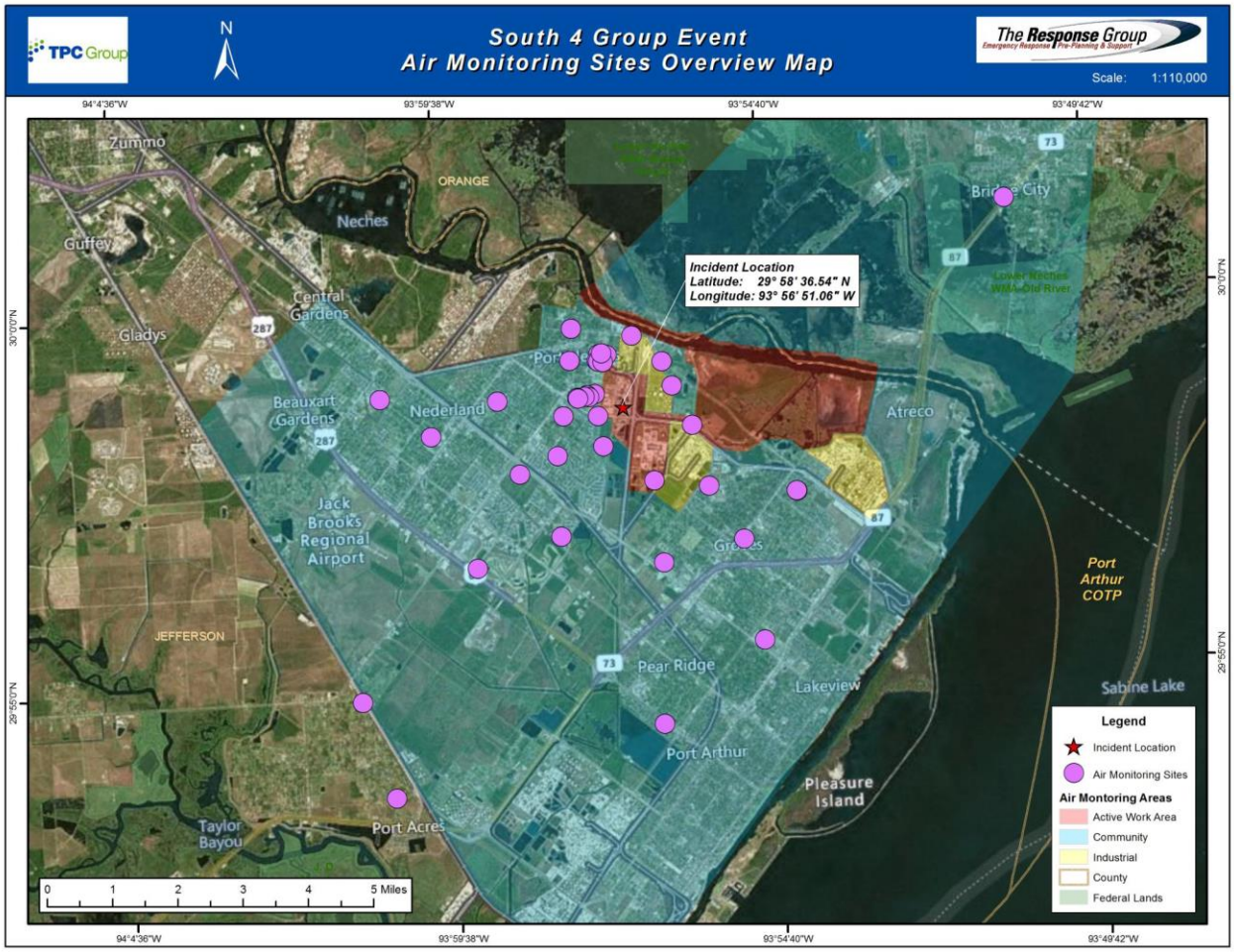


Table 4.2.1 Summary of Outdoor Analytical Air Sample Detections – Volatile Organic Compounds (VOCs)

Analyte	Count of Samples	Count of Detections	Detection Range (ppb)	Health-Based Screening Value (ppb)
1,2,4-trimethylbenzene	893	471	0.0601 J - 5.36	3,000[B]
1,3-butadiene	893	558	0.0603 J – 1,370	430[A]
Benzene	893	892	0.0728 J - 6.16	100[A]
Butane	893	893	0.602 - 263	92,000[B]
Ethylbenzene	893	516	0.0601 J - 2.51	20,000[B]
MTBE	893	281	0.0604 J - 124	500[B]
Naphthalene	893	78	0.154 J - 10.2	95[B]
m&p-xylene	893	796	0.0947 J - 9.29	1,700[B]
o-xylene	893	610	0.0634 J - 3.16	1,700[B]

J – The reported value is a laboratory estimate. [A] TCEQ 24-hour AMCV; [B] TCEQ Short-term AMCV

4.a.i.3 Water Sampling

TPC engaged the Center for Toxicology and Environmental Health (CTEH) to perform surface water sampling shortly after the incident occurred. Fire water runoff was produced in response to firefighting activities on-site. Every effort was made to contain as much of the firefighting water runoff as possible within the drainage systems and ponds within the facility. Additional runoff storage capacity was also utilized at the Joint Waste Water Treatment Plant (JWWTP) owned and operated by Huntsman (Indorama), TPC and Lyon Elastomers. Some of the firefighting water runoff flowed from the TPC site to the JWTTP and then to the Neches River. Alternately, the runoff that could no longer be contained within the system overflowed Outfall 201 from the TPC site to the discharge canal to the Star Lake Canal to the Neches River or was pumped to Huntsman's tertiary treatment and then to the Neches River (Divisions A – E as discussed in the Water Ops section of this report). Surface water sampling activities by CTEH began on the evening of the event. Surface water sampling was primarily focused on areas in proximity of outfall locations to evaluate downstream movements of runoff from the TPC facility and to assess the potential for offsite chemical impacts. The *Environmental Sampling and Analysis Plan* was approved by UC. A total of 265 samples were analyzed and *Table 2.1.1 Surface Water Sampling Locations and Descriptions* for a summary of the sampling location descriptions, number of samples collected and the date range of sampling. Nine drinking water samples were taken with no exceedances of TCEQ or USEPA concentration/contaminant levels. Surface water sampling for PFOS/PFOA resulted in no exceedances of drinking water advisory levels. Results from surface water samples were compared to various health-based screening values, depending on the reported water use and community access. There were no exceedances of protective concentration levels or maximum contaminant levels set by TCEQ or USEPA.


South 4 Group Fire
Water Sampling Overview Map
12/05/2019
TPC Group
The Response Group
Emergency Response | Pre-Planning & Support
Scale: 1:27,000
N
93°57'0"W
93°56'0"W
93°55'0"W
93°54'0"W
30°0'0"N
29°59'0"N
29°58'0"N
Neches
ORANGE
JEFFERSON
Outfall of Nachese River ; NE of TPC
Port Arthur COTP
Huntsman Number 4 Outlet Pipe
Port Neches Water treatment Facility
N end of Small canal along side Park St
South of Facility
Water treatment plant south off of 366
N of Hwy 336 in a controlled level water structure
Orchard Avenue on bridge
Division A
Division B
Division C
Division D
Division E
Port Neches Atlantic Road
Atlantic Road N of Atlantic Canal
0 0.2 0.4 0.6 0.8 1 Miles
Legend
Incident Location
Water Sampling Locations
Division
County

Table 2.1.1 Surface Water Sampling Locations and Descriptions[1]

Location Code	Location Description	Samples Collected	Sample Start Date	Sample End Date
WS000	Baseline; Huntsman Dock at Neches River; NE of TPC	1	11/27/2019	11/27/2019
WS001	Port Neches Atlantic Road; downstream from Outfall 001 (permitted discharge location)	22	11/28/2019	12/9/2019
WS002	Water Treatment Wetlands Outlet; Outfall 004 (permitted discharge location)	37	11/27/2019	1/31/2020
WS003	Orchard Avenue on Bridge over 001 Canal	39	11/28/2019	1/31/2020
WS004	Outfall 001 canal by Huntsman ditch cut, N. of Hogaboom Rd at Pure Atlantic Rd / Hwy 366; Outfall 001 (permitted discharge location)	22	11/29/2019	12/9/2019
WS005	South of Facility; pond parallel to Hwy 366	1	11/29/2019	11/29/2019

WS006	N. of Hwy 366 in a Controlled Level Water Structure; Outfall 001 canal	36	11/29/2019	1/30/2020
WS007	N. end of **Lower Neches Valley Authority** (LNVA) Canal to City of Port Neches; Park St. E. of Baseball Field; raw water (pre-treatment drinking water source)	1	11/29/2019	11/29/2019
WS008*	City of Port Neches Water Plant at Drinking Water Faucet	11	11/30/2019	1/29/2020
WS009	Baseline sample; Upstream of site; Collier's Ferry Park, S. of Boat Ramp, Beaumont, TX	9	12/1/2019	1/18/2020
WS010	TPC effluent to Joint Wastewater Treatment Plant (JWWTP); S. of 366	20	12/1/2019	1/30/2020
WS011	Baseline sample; TPC Dock; water inlet	1	12/2/2019	12/2/2019
WS014	S. of TPC facility at drainage culvert; ditch perpendicular to Hwy 366; JWWTP discharge from polishing ponds	16	12/3/2019	1/30/2020
WS015	Outfall 201 (Permitted discharge); SE corner of TPC facility	8	12/4/2019	12/9/2019
WS016	Huntsman ditch at Port Neches Atlantic Rd; Division E	2	12/6/2019	12/10/2019
WS017	Outfall 301; JWWTP holding pond (permitted discharge location)	21	12/5/2019	1/30/2020
WS021	Upstream of Huntsman ditch	1	12/8/2019	12/8/2019
WS022	W002 Block 6 Pond, NE of incident site	1	12/8/2019	12/8/2019
WS023	Neches River downstream of confluence with Molasses Bayou	12	12/11/2019	1/18/2020
WS024	Molasses Bayou between Neches River and Port Neches Atlantic Rd.	4	12/11/2019	12/14/2019
Total		265		

NA = Not Applicable
*WS008 = drinking water location
[1]Samples collected at WS012, WS013, WS018, WS019, and WS020 were product samples and thus not included in this report.

4.a.i.4 Soil Sampling

No soil sampling was performed during the UC period of the event, November 27, 2019 to January 30, 2020. Impacts to soil will be addressed during the demolition phases of Blocks 5 and 10 at the facility.

4.a.i.5 Asbestos Sampling

The fixed location ambient air sampling stations that were deployed the morning of the incident by CTEH also analyzed for asbestos to quantify the presence of airborne asbestos fibers, if any, in the nearby community. *Table 4.2.4 Summary of Analytical Sampling – Integrated Asbestos Air Sampling* details the method of analysis, number of samples and number of detections of total fibers and asbestos fibers.

Table 4.2.4 Summary of Analytical Sampling – Integrated Asbestos Air Sampling[1]

Analytical Method	Analyte	Count of Samples	Count of Detections	Range of Detections
NIOSH 7400 (PCM)	Total Fibers	1,706	34	0.003 - 0.01 f/cc
NIOSH 7402 (TEM)	Asbestos Fibers	720	0	< 0.0057 f/cc

*Laboratory non-detections are reported as less than ("<") the laboratory method reporting limit.[1]From November 27 to the evening of December 16, all asbestos analytical air samples were analyzed by both PCM and TEM methods. Beginning on December 17, PCM analysis was run on all samples and TEM analysis was performed if there was a PCM result above the laboratory limit of quantitation (LoQ) for that sample.

Beginning on December 1, 2019, TPC initiated CTEH to perform observational assessment and collection of potential facility-related debris in the community near the Port Neches facility. The assessments were conducted at various locations including residential, commercial, industrial and public areas within the community surrounding the TPC facility. If a property assessment revealed industrial related debris, CTEH would perform bulk and wipe sampling for ACM, as appropriate. Such debris was cleaned up and disposed of as ACM. Collected materials were staged at the TPC waste staging area and disposed of as ACM.

4.b.i. Waste Management

Waste Description	Amount Generated	Amount Sent Off Site	Unit of Measure	Disposal/ Treatment
Waste Water from Canal Response, including washout water	249,639	249,639	Gallons	Intergulf Corporation
Hydrocarbon Contaminated Debris (Response debris)	27.49	27.49	Tons	WM Newton County Landfill
Asbestos Containing Material (PACM Cleanup)	42.92	42.92	Tons	WM Newton County Landfill
Class 2 Wastewater from KO Pot Clean out	1200	1200	Gallons	Clean Harbors Deer Park
Soil From Hydro Excavation	30	30	Yards	Sent to WM Newton County
Hydrocarbon from South Separator & API	30,000	8000	Gallons	Material is being sent to Waste Management Carlyss for inclusion in their recycling program.
Water with Hydrocarbon from Dewatering Tanks & Washes	1500	1,500	Bbls.	Will continue to generate more if water wash tanks.
Mixture of Hydrocarbon from process with water	6100	0	Bbls.	Still moving within tanks and de-watering.
Water and Hydrocarbon from Sump	90,000	18,000	Gallons	Being sent offsite for separation and wastewater treatment to Intergulf. The final shipments are expected the week of 6/15/2020

Waste Description	Amount Generated	Amount Sent Off Site	Unit of Measure	Disposal/ Treatment
Activated Carbon	2000 spent 6000 in use	0	Pounds	Testing to be done to verify Class 1; continue to generate
Bioscrub, scrubbing solution for frac tank control	125 spent 750 in use	0	Gallons	Still in use, will sample to determine waste code and disposition.

4.c.i.9 Fire Emissions to Air

Total Emissions Summary			
Source	**Pollutant**	**Emissions**	**Unit**
South Plant Fire	NOx	8.15	ton
	CO	103.63	ton
	PM	113.25	ton
	PM2.5	84.94	ton
	SO2	6.58	ton
	VOC	284.11	ton
Block 4 Fugitives	VOC	0.01	ton
Block 5 Fugitives		2.61	
Block 7 Fugitives		0.09	
Block 8 Fugitives		0.13	
Block 9 Fugitives		0.67	
Block 10 Fugitives		0.53	
Block 11 Fugitives		0.16	
Block 12 Fugitives		0.12	
Block 13 Fugitives		0.11	
Block 18 Fugitives		2.03	
Block 19 Fugitives		0.03	

4.c.i.15 Wildlife

TPC utilized Wildlife Response Services as the contractor to manage wildlife impacts associated with the incident and subsequent response efforts. Texas Parks and Wildlife representatives were also active participants in the EOC. Please see the ISC 209 Form in Appendix C for a summary of wildlife impacts.

4.d. Safety

4.d.i. Onsite

During the South 4 Group event many safety efforts were established to protect employees and emergency responders. Center for Toxicology and Environmental Health (CTEH) was brought in immediately to begin

community exposure monitoring and air sampling, including a temporary fence line monitor. The Response Group (TRG) was mobilized to assist with organizing the Emergency Operations Center (EOC), providing tools and guidance to ensure an effective response was coordinated between the site, EOC, the community and all agencies involved. Daily shift meetings were established for continuous communications and resource requests throughout the length of Unified Command.

Asbestos: Decontamination trailers were rented and setup at the site for emergency responders to minimize exposure to presumed asbestos containing materials (PACM). Cotton Logistics brought in a team of ~450 persons to pick up debris and PACM in the community and in the plant. Cotton also set up decontamination stations within the facility for decontaminating equipment and needed or agency requested documentation pulled from the plant buildings.

Structures: Baker Risk was hired to assess all buildings on site and rank according to structural damage. Additionally, Baker Risk performed a hazard assessment on the damaged Blocks to determine remaining hazards and fall potential of equipment still standing, including developing a fall radius for the towers. An Exclusion Zone was established around Blocks 5 and 10 whereby entrance was prohibited without explicit authorization.

PPE and Equipment: A Site Safety Plan was written and approved by UC providing personal protective equipment (PPE) expectations for site entry and response, as well as for environmental cleanup in the community and along waterways. Radios were rented to ensure appropriate communication to all personnel and responders on site. Vallen Safety established a trailer at the facility with needed respiratory equipment, portable air monitors, Tyvek suits and any other necessary PPE to protect workers and emergency responders.

4.d.ii. Community

Ambient air monitoring began within hours of the start of the event, extensive monitoring resources were deployed. Monitoring response teams were positioned throughout the initial 4-mile radius of the facility and 24/7 monitoring continued throughout the Unified Command period of the event and beyond. Extensive water monitoring resources and response cleanup resources were quickly deployed and those resources were in place throughout the same periods as the air monitoring. A community hotline and community response website were established the day of the incident to support and inform our community. As soon as the main fires were extinguished TPC began efforts to assess the industrial debris in the area and deployed multiple contractors to document, sample, remove and dispose of incident related debris. Over 2800 properties were assessed. TPC worked closely with the Mayors, Fire Chiefs and Police Chiefs of the surrounding communities of Port Neches, Groves and Nederland.

4.h. Communications

TPC worked closely with UC to ensure that the surrounding communities and other stakeholders were informed through multiple communication avenues throughout the event. A Joint Information Center (JIC) was established to post and distribute links to new releases, facts, FAQs and response imagery. A community response website was created, a community hotline was created for claims, and social media was utilized to distribute information related to the event. A total of 46 new releases were issued by TPC during the period of Unified Command.

Appendix A

Chronology of the Event

Date/Time	Event/Notes
11/27/2019 1:00	Explosion occurred at TPC Port Neches Facility
11/27/2019 __:__	Emergency Response Plan was immediately activated. Firefighting activities initiated and request for mutual aid.
11/27/2019 3:24	SERC notified (SERC Report No. 20194276) (Anthony Hilts with TCEQ was notified by SERC)
11/27/2019 3:40	NRC notified (NRC Report No. 1264990)
11/27/2019	Unified Command established
11/27/2019 8:58	Run-off of firefighting water is overflowing Outfall 201 weir. Power outage to the site and surrounding areas occurred at the time of the event. This impacted the jointly owned waste water treatment plant, operated by Indorama. TPC attempted to retain the water, but capacity exceeded and water began flowing from Outfall 201.
11/27/2019 9:21	Confirmation of boom for water run-off. Clean Harbors at Motiva Gate installing booms in stages down to the Neches River.
11/27/2019 09:42	CTEH begins real-time air monitoring
11/27/2019 __23:00__	CTEH arrived on site 08:00, developed the Environmental Analysis and Sampling Plan, which was approved by UC initiates surface water and firefighting water sampling at 23:00
11/27/2019 11:45	Secondary explosion occurs. All personnel accounted for, no injuries.
11/27/2019 15:35	Evacuation Order for 4-mile radius of the facility issued
11/27/2019 17:14	Packing and moving the EOC from Indorama (Hunstman) Admin Bldg. Ultimately, the decision was made to relocate to the Holiday Inn at Walden Rd
11/27/2019 17:51	EOC is operational at Holiday Inn at Walden Rd in Beaumont
11/27/2019 18:03	Overflowing Outfall 201 weir
11/28/2019 10:30	Drone/IR/Thermal video feed of the incident scene into EOC initiated
11/28/2019 20:58	Flow re-established to JWWTP. Repairs were made and generator used to establish power, diesel pumps were set up and connected to the pipeline to allow flow to be re-established.
11/29/2019 10:28	Evacuation Order for 4-mile radius of the facility is lifted.
11/30/2019 2:03	All fires in Block 5 tank farm are extinguished.
11/30/2019 9:31	Main fire in Block 10 (South Unit) extinguished. Only very small pressure fires remain.
11/30/2019 23:27	Leaning tower S4D3 fell. No injuries.
12/1/2019 __:__	Wildlife Rehabilitation contractor contacted
12/1/2019 __:__	Texas Parks & Wildlife notified
12/2/2019 0:00	Sphere and Equipment temperature monitoring rounds initiated. A drone was used to survey and monitor the equipment near and surrounding the impacted zone.
12/2/2019 9:00	Community Asbestos Assessment by CTEH commences
12/2/2019 __:__	Initial Shoreline Cleanup and Assessment Technique (SCAT) was performed. A multi-agency team evaluated the outfall canal shoreline and the wetland areas between the outfall and Neches River. Based on the survey, sectors were established for cleanup and monitoring activities.
12/2/2019 16:00	Wildlife Hotline established
12/4/2019 18:08	Shelter-in-Place issued by County Judge due to TK25 leak
12/4/2019 22:00	Voluntary evacuation/shelter in place order issued

12/5/2019 9:43	TK25 damaged relief valve was switched to standby relief valve. Leak secured.
12/5/2019 12:30	Voluntary evacuation/Shelter-in-Place lifted
12/6/2019 __:__	Overflow of Outfall 201 weir ends
12/11/2019 __:__	Unified Command approved a reduction in water sampling locations
12/11/2019 __:__	Unified Command approved the reduction in community real-time air monitoring from 4-mile radius to 1-mile radius of the facility
12/11/2019 __:__	Follow-up SCAT performed
12/16/2019 11:14	Overflow of Outfall 201 occurs due to failure of portable pump
12/16/2019 12:19	Overflow of Outfall 201 ceases, portable pump restarted
12/19/2019 __:__	Unified Command approved a second reduction in water sampling frequency
12/19/2019 __:__	Unified Command approved a second reduction in community real-time monitoring from 1-mile radius to 0.5-mile radius of the facility
1/4/2020 __:__	All remaining small fires are extinguished
1/26/2020 __:__	Follow-up SCAT performed
1/26/2020 __:__	Initiated surface water and soil sampling post-event activities
1/30/2020 __:__	Unified Command approved the completion of surface water sampling activities for event
1/30/2020 __:__	Unified Command approved the reduction in community real-time air monitoring to just the fenceline perimeter around the facility
1/30/2020 __:__	Unified Command disbanded and incident command relinquished to TPC
2/11/2020 __:__	Community Asbestos Assessment activities conclude
2/26/2020 __:__	Post-event surface water and soil sampling activities completed
2/26/2020 __:__	Final SCAT performed by TCEQ
2/28/2020 __:__	Discharge waterway cleanup activities conclude and booms and supporting equipment demobilized
3/30/2020 11:12	Emissions Event ends

Appendix B

Source Control Report

Source Control Daily Report

TPC Port Neches Incident

Source Control Tracker Table

Identifier	Status	Source Description	Origin	Mitigation Complete On	Last Activity Comments	Last Activity Date
10-17TK-01	COMPLETE	Tk-17 3" Header @ 3-1 Gantry under Fallen tower (S2D8) in Block 10. #15 Tim Harris' List	1/13/2020	1/15/2020	Leak checked after water purge. 0ppm VOC, 0ppm 1,3 BD, 0% LEL.	1/17/2020 9:35 AM
10-19Effluent-01	COMPLETE	Vapor visible to naked eye coming from ~600 lbs flange on 8" line. Located on the West side of Block 10 south of the reactors and directly east of a horizontal bullet tank.	1/12/2020	1/16/2020	Tim Harris, Richard Breaux, SRS, and CTEH went in to evaluate leak, trace lines, and potentially shut in line to mitigate the leak. 3 valves were closed at the reactors. Vapors were drastically reduced. Water monitor turned back on.	1/14/2020 9:20 AM
19-26F4-01	COMPLETE	West flange and East packing on east end of block. Formerly "Flare Line"	1/26/2020	2/3/2020	CTEH personnel noticed strong odor again in area of 5th st and C ave. Investigation findings of true origin of leak in SE pump sump in block 19. Pump was running and moving water into sump at 5th and C. Williams fire applied foam blanket	1/28/2020 4:00 AM
04-328H2Line-01	COMPLETE	Plug coming off of 90 and valve on 90. 49% LEL. Hydrogen has a cross sensitivity to the MultiRAE Pro carbon monoxide sensor. CO sensor detected 40ppm.	1/28/2020	1/28/2020	Chip Day (SRS) tightened the valve packing and TPC pipe-fitter tightened plug until no LEL or hydrogen registry on the carbon monoxide sensor was observed. Water was poured over each source with no observed bubbling.	1/28/2020 12:19 PM
10-Block10FlareHeader-01	COMPLETE	Corner of 2nd and B. Flare header in process unit near gantry-1	1/24/2020	2/22/2020	4 Blinds installed near 3rd and B. 2-14" blinds at S3F29, 2-8" blind at S3F29	1/26/2020 11:40 AM
10-ED-01-01	COMPLETE	ED-1 Overheads to Raff Splitter @ 3-1. 4" line on 3rd street cross lateral @ 3-1 Gantry pipe rack under fallen tower (S2D8) in Block 10.	1/8/2020	1/8/2020	1. S2D4OH & S4D5OH blocked in at tie in to 92TK Line in MRU unit (see photo log) 2. Block S2D4OH & S4D5OH at Manifold 3-1 Gantry (see photo log)	1/8/2020 8:00 AM
05-NaturalGasLine-01	COMPLETE	Natural gas line between tank 41 and tank 89. S of platform by 3rd St.	1/12/2020	1/12/2020	Plug installed in gas line. Leak mitigation completed	1/12/2020 10:00 PM
05-OldBDLine-01	COMPLETE	Old BD Line beneath N side of tower in Block 5. #14 Tim Harris' List	1/16/2020	1/16/2020	Leak initially detected on Area RAEs near Tank 38 in excess of 300ppm VOCs, then extending to detections on additional AreaRAEs in the surrounding area NW of Block 5. TPC Safety detected plume in an area near Tank 35 with a FLIR camera. TPC, CTEH, and SRS approached an upwind entry into Block 5 from 2nd St. While traversing the East edge of the exclusion zone from berm, a	1/16/2020 3:21 PM

					bubbling sound was noted, then bubbling was visible in the water North of the fallen tower. Readings at the bubble's source were above the upper detection limits for VOCs and %LEL. TPC and CTEH tracked the "Old BD Line" due North to locate the closest valve. The valve located at the pipe chase directly South of 3rd St. was closed and the bubbling eventually stopped and plume diminished.	
12-SpongeOilSump-01	COMPLETE	Sponge oil from tower in SE corner of Block 12 drained to sump.	2/4/2020	2/6/2020	Awaiting carbon filter for vaccum truck to remove liquid from sump. VOC detections from surface of sump around 70ppm. No active leaks draining in sump. Marking leak complete prior to removal of product from sump because of the lower VOC detections and no active release of product into sump	2/6/2020 10:32 AM
12-SteamLineSystem-01	COMPLETE	Hydrocarbon introduction to the steam system (25 lb and 160 lb lines); nitrogen purge and two thermal oxidizers are in place to increase containment. Detections of hydrocarbons along the system have be found in Blocks 07, 08, 11, 12, and 13.	2/23/2020	3/8/2020	Continuous air monitoring along steam system to document and update leak status.	2/23/2020 3:24 PM
07-Tank16TemporaryLinetoTO-01	COMPLETE	Loose Flange near the header	1/23/2020	1/23/2020	CTEH and SRS personnel entered the facility to investigate high readings that were being detected at AreaRae location 28 at the TO on 5th St. Upon arrival, it was determined that a flange at the first 20ft line off of the manifold was leaking at the junction of two 6" braided SS lines incoming from tank 16. Peak VOC reading was 4999 ppm. Peak LEL reading was 99%. After SRS tightened the flange bolts, readings at the source trended down to non detections.	1/23/2020 6:30 AM
05-Tank33-05	COMPLETE	Tank 33-Leak Mitigation Strategy	1/1/2020	1/29/2020		
05-Tank38-02	COMPLETE	Start of de-inventory of tank 38	1/30/2020	2/1/2020	Heel in tank to be attempted for transfer using Roper pump and filter pot to tank 97.	2/6/2020 11:28 AM
05-Tank38-01	COMPLETE	Tank 38. Multiple holes on tank walls patched and leaking PRV atop tank.	1/12/2020	2/7/2020	Tank 38 heel removed to Tank 98. Awaiting filter wash and sampling - projected to be done on night shift.	2/7/2020 2:49 PM

05-VentSuction-01	COMPLETE	Flange below 90 on 3" vent suction line; in ditch near damaged walk way as line comes out of berm leading to tanks 33 and 34. Approximately 20 yards north of pipeline riser.	1/14/2020	1/25/2020	Checked flange at 90. Peak of 1.6 ppm VOCs.	1/25/2020 11:06 AM

Appendix C

Form 209

ICS 209 (Oil Spill) - Incident Status Summary

Version Name: 20200401

Incident Name: South 4 Group Fire

Period: Period 17 [01/31/2020 09:00 - 05/01/2020 09:00]

Spill Status (Estimated)

Source Status		
SECURED	**Remaining potential**	151,740
	Rate of spillage	0 barrel(s)
	Volumes measured in	barrel(s)

	Since Last Report	Total
Total Volume Spilled	0	999

Mass Balance (Estimated)

Volumes in gallon(s)

Recovered Material (Liquid)	15,000	76,500
Foam	0	1,320
Combusted Material (bbl)	0	48,970
Totals	**15000**	**126790**

Waste (Estimated)

Type	Recovered	Stored	Disposed	UOM
Sorbent: Boom	13,720			
Debris	1,703			
Liquid	231,280			

Shoreline Impacts

Distances measured in mile(s)

Degree of Oiling	Affected	Cleaned	Remaining to be Cleaned

Wildlife Impacts

					Died In Facility	
Type	Captured	Cleaned	Released	DOA	Euth.	Other
Fish Above 3"	0	0	0	68	0	0
Bird	0	0	0	0	0	0
Mammal	0	0	0	0	0	0
Reptile	0	0	0	1	0	0
2-3" Fish	0	0	0	2,000	0	0
Blue Crab	0	0	0	18	0	0
Pig				2		
Turtle				1		

Safety Status

Type	Amount since last report	Total Amount
Public Injury	0	0
Responder Injury	1	5
Community Air Monitoring readings for Butadiene		60,100
Community Air Readings for all analytes		162,300
BD - Community Air Detections above action level		240

Equipment Resources

Kind	Ordered	Available	Assigned	Out-Of-Service	Total Count
Air Monitor - AreaRAE	0	0	30	0	30
Air Monitor - MultiRAE	0	0	35	0	35
Air Monitor - UltraRAE	0	4	31	0	35
Boom	0	0	2,300	0	2,300
Equipment: Heavy	0	6	8		14
Crane	0	0	1	0	1
Frac Tank	0	3	5	0	8
Generator	0	2	38	0	40
Light Plants	0	0	33	0	33
Pumps	1	1	16	0	18
Roll Off Box	0	0	23	0	23
UTV	0	4	29	0	33
Vacuum Truck	0	0	3	0	3
Vehicle	0	0	75	0	75

Personnel Resources

Organization	People in the Field	People in Cmd. Post	Total People On Scene
Other	3	0	3
Federal	0	0	0
State	0	0	0
Local	8	0	8
RP	73	44	117
Contract Personnel	106	24	130
Totals	**190**	**68**	**258**

Special Notes

Active Fires: Per B. Jaschek at EOC - NO FIRES as of 1/4/2020

Notes:

*Spilled material based on 98% destruction efficiency of the fire.

CIRS: None to Report

1/31/20: Reporting will now occur every Tuesday afternoon.

People in the Field: Others: Huntsman Personnel

Safety Status		
Type	*Amount since last report*	*Total Amount*
VOC - Community Air Detections above action level		11
Community Air Monitoring readings for VOC		60,461